

WHAT IS CLAIMED IS:

- 1 1. A process for treating a chromate waste liquid  
2 containing an organic acid component, said process comprising:  
3 adding a chromium precipitation accelerating agent  
4 comprising at least one of a calcium component and a  
5 magnesium component, to said chromate waste liquid; and  
6 adjusting said chromate waste liquid to having a first  
7 pH of 9 or higher, thereby precipitating a chromium component  
8 from said chromate waste liquid and thereby reducing a  
9 concentration of a dissolved chromium component of said  
10 chromate waste liquid.
- 1 2. A process according to claim 1, wherein said chromium  
2 precipitation accelerating agent comprises at least one of a  
3 calcium-containing inorganic compound and a  
4 magnesium-containing inorganic compound.
- 1 3. A process according to claim 1, wherein said chromium  
2 precipitation accelerating agent comprises at least one  
3 compound selected from the group consisting of  $\text{Ca}(\text{OH})_2$ ,  $\text{CaCl}_2$   
4 and  $\text{MgCl}_2$ .
- 1 4. A process according to claim 1, wherein said adjusting is  
2 conducted by adding said chromium precipitation accelerating  
3 agent and a basic pH adjusting agent, which is different from  
4 said chromium precipitation accelerating agent, to said  
5 chromate waste liquid.
- 1 5. A process according to claim 4, wherein said basic pH  
2 adjusting agent comprises at least one compound selected from  
3 the group consisting of  $\text{NaOH}$ ,  $\text{KOH}$  and  $\text{LiOH}$ .

- 1 6. A process according to claim 1, wherein, prior to said  
2 adding, a chromium concentration of said chromate waste  
3 liquid is from 10 to 1,000 ppm by weight.
- 1 7. A process according to claim 1, wherein said chromium  
2 precipitation accelerating agent comprises  $\text{CaCl}_2$  and is added  
3 to said chromate waste liquid such that calcium of said  $\text{CaCl}_2$  is  
4 in an amount of 500-1,000 mg per liter of said chromate waste  
5 liquid.
- 1 8. A process according to claim 1, wherein said chromium  
2 precipitation accelerating agent comprises  $\text{MgCl}_2$  and is added  
3 to said chromate waste liquid such that magnesium of said  
4  $\text{MgCl}_2$  is in an amount of 200-500 mg per liter of said chromate  
5 waste liquid.
- 1 9. A process according to claim 1, wherein said chromate  
2 waste liquid is stirred, after said adding of said chromium  
3 precipitation accelerating agent.
- 1 10. A process according to claim 9, wherein said chromate  
2 waste liquid is stirred for a period of time from 0.5 to 2 hr.
- 1 11. A process according to claim 1, wherein said chromate  
2 waste liquid comprises a zinc component, and wherein, after  
3 said adjusting, said first pH of said chromate waste liquid is  
4 decreased to a second pH that is 8 or higher, thereby  
5 decreasing a zinc concentration of said chromate waste liquid.
- 1 12. A process according to claim 1, wherein said adjusting is  
2 conducted, while said chromate waste liquid is maintained at a  
3 temperature of  $20^\circ\text{C}$  or higher.

1 13. A process according to claim 12, wherein said  
2 temperature is 25°C or higher.

1 14. A process according to claim 13, wherein said  
2 temperature is 30°C or higher.

1 15. A process according to claim 1, further comprising:  
2 maintaining said chromate waste liquid at said first pH  
3 for a period of time of 0.5 hr or longer; and  
4 adding a high-molecular coagulant to said chromate  
5 waste liquid, thereby accelerating said precipitation of said  
6 chromium component.

1 16. A process according to claim 15, wherein said  
2 high-molecular coagulant comprises polyacrylamide.

1 17. A process according to claim 2, wherein said chromium  
2 precipitation accelerating agent comprises said  
3 calcium-containing inorganic compound, and  
4 wherein said precipitated chromium component is  
5 separated from said chromate waste liquid, and then said  
6 chromate waste liquid is neutralized with an acid that is  
7 reactive with a calcium component dissolved in said chromate  
8 waste liquid, thereby turning said dissolved calcium component  
9 into a calcium-containing precipitate.

1 18. A process according to claim 2, wherein said chromium  
2 precipitation accelerating agent comprises said  
3 magnesium-containing inorganic compound, and  
4 wherein said precipitated chromium component is  
5 separated from said chromate waste liquid, then said chromate  
6 waste liquid is neutralized with an acid, and then a dissolved

7 magnesium component is removed from said chromate waste  
8 liquid by a reverse osmosis or an ion exchange.

1 19. A process according to claim 18, wherein said acid is  
2 such that said dissolved magnesium component remains in a  
3 dissolved form even after said neutralization

1 20. A process according to claim 1, further comprising  
2 maintaining said chromate waste liquid at said first pH, while  
3 said chromate waste liquid is stirred.

1 21. A process according to claim 1, wherein said first pH is  
2 from 9 to 12.5.

1 22. A process according to claim 21, wherein said first pH is  
2 from 10 to 12.5.

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